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- (71) Applicant (for all designated States except US): **KOLON INDUSTRIES, INC** [KR/KR]; KOLON Tower, 1-23, Byulyang-dong, Kwacheon-city, 427-040 Kyunggi-do (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **CHOI, Yo-eng-Baeg** [KR/KR]; 107-606 Hwasung 3-APT, Dong Chun-dong, Buk-gu, 702-760 Daegu-si (KR). **LEE, Young-Hwan** [KR/KR]; 311-1304 Dorang 3-APT, Dorang 2-dong, Gumi-si, 730-760 Kyungsangbuk-do (KR).
- (74) Agent: **CHO, Hwal-Rai**; Suite No. 1507 Yoksam Heights Bldg, 642-19, Yoksam-Dong, Kangnam-Gu, 135-981 Seoul (KR).
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(54) Title: A MICROCELLULAR FOAMED FIBER, AND A PROCESS OF PREPARING FOR THE SAME

(57) Abstract: The present invention discloses microcellular fibers, in which microcells are formed with a density of more than 10^7 cells/cm³ with a supercritical fluid introduced into fiber forming polymers and have a rate of volume expansion of 1.2 to 50, a ratio of microcell length to microcell diameter of more than 2 and a monofilament diameter of more than 5µm. The microcellular fibers provide high and uniform cell densities and are good in the rate of volume expansion and the ratio of cell length to cell diameter, thus they are very excellent in lightweight feeling and touch. The microcellular fibers are made by a method for making microcellular fibers, wherein a supercritical fluid is introduced into an extruder upon melting and mixing fiber forming polymers in the extruder, to thus prepare a single-phase solution of molten polymer and gas, then the single-phase solution of molten polymer and gas is extruded (spun) through spinneret of spinning pack by subjecting the single-phase solution to a rapid pressure drop, to thus make microcellular extrusion materials, the microcellular extrusion materials are rapidly cooled by a cooling medium, and then they are wound at a winding speed of 10 to 6,000m/min so that a spinning draft can be 2 to 300.

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